

ABSTRACT

Disclosed is to a single electron device, a method of manufacturing the same, and a method of simultaneously manufacturing a single electron device and an MOS transistor. Accordingly, the single electron device of the present invention comprises, on a substrate, semiconductor layers in which a source region and a drain region spaced a predetermined distance apart are formed, hemisphere-type silicon layer formed between the semiconductor layers as an active layer, the hemisphere-type silicon layer having a plurality of electron islands, a gate insulating layer formed on a top surface of the entire structure, and a gate electrode formed on the gate insulating layer in order to apply voltage to the active layer.